Abstract of the Disclosure

GROUP III-B METAL CATALYST SYSTEM

The subject invention relates to a technique for synthesizing rubbery non-tapered, random, copolymers of 1,3-butadiene and isoprene. These rubbery copolymers exhibit an excellent combination of properties for utilization in tire sidewall rubber compounds for truck tires. By utilizing these isoprene-butadiene rubbers in tire sidewalls, tires having improved cut growth resistance can be built without sacrificing rolling resistance. Such rubbers can also be employed in tire tread compounds to improve tread wear characteristics and decrease rolling resistance without sacrificing traction characteristics. This invention more specifically discloses a process for the synthesis of isoprene-butadiene rubber which comprises copolymerizing isoprene monomer and 1,3-butadiene monomer in an organic solvent in the presence of a Group III-B metal containing catalyst system that is made by the sequential steps of (I) reacting an organometalic compound that contains a metal from Group III-B of the Periodic System with an organoaluminum compound at a temperature which is within the range of 50°C to 100°C to produce an aluminum modified Group III-B metal containing catalyst component, and (II) mixing the aluminum modified Group III-B metal containing catalyst component with a halogen containing compound, wherein the catalyst system is void of compounds selected from the group consisting of aliphatic alcohols, cycloaliphatic alcohols, aliphatic thiols, cycloaliphatic thiols, trialkyl silanols, and triaryl silanols.